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## Pakistan

### Agricultural Situation

### Pakistan on Ug99 High Alert

**2008**

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**Report Highlights:**

Pakistan is on high alert following detection of the deadly Ug99 wheat stem rust disease in Iran in March 2008. Initial steps have already been taken by the Pakistan Agriculture Research Council and the National Wheat Program to develop wheat varieties with resistance to the deadly disease. It is predicted that Ug99 could reach Pakistan within 2 to 3 years. To date, Ug99 has not been detected in Pakistan's 2008 wheat crop. The Government of Pakistan has allocated 40 million rupees (USD 645,000) for agricultural research to combat the threat to the domestic wheat crop. Two Pakistani plant scientists will attend training this year on Ug99 at the International Maize and Wheat Improvement Center in Mexico under USDA's Borlaug Fellowship Program.

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## **Pakistan on Ug99 High Alert**

The Food and Agriculture Organization (FAO) of the United Nations put Pakistan and five other wheat-producing countries on high alert following confirmed reports that Ug99 wheat stem rust had been detected in major wheat-growing areas in western Iran. Pakistan, located to the east of Iran, is in the predicted, immediate pathway for windborne spread of the deadly wheat fungus spores – particularly in Sindh and lower Punjab.

### **No Ug99 in Pakistan Yet – But the Clock is Ticking**

Wheat rusts are not new to Pakistan. The country faced its first challenge in 1977 when a rust epidemic decimated what crops and forced the GOP to import over 2 million tons of wheat to meet domestic demand. Following the 1977-78 outbreak, Pakistan established strong linkages with research institutions including the Mexico-based International Maize and Wheat Improvement Center (CIMMYT) and the Syria-headquartered International Center for Agricultural Research in the Dry Areas (ICARDA). Through collaborative efforts, Pakistani plant breeders receive germ plasm from these centers for use in ongoing wheat strain breeding programs.

According to a survey conducted by the Pakistan Agriculture Research Council (PARC), there is currently a low overall incidence of wheat stem rust in Pakistan's 2008 wheat crop and only one suspected case of Ug99 has been reported. The case, detected in wheat-producing Sindh Province, proved to be a local strain of wheat rust and not the feared Ug99. The good news may be short-lived as scientists fear that Pakistan has only a window of 2 to 3 years before Ug99 is found within its borders.

Dr Mujeeb Qazi, Program Director of Pakistan's National Wheat Program, warns against complacency. According to Dr. Qazi, the swift movement of Ug99 from Yemen to Iran within just one year has raised alarm bells within Pakistan's scientific community. Pakistani researchers will have to expedite efforts to protect wheat productivity over the next crop cycle (2008-09) by locally introducing Ug99-resistant wheat seed. Dr Qazi warned that, as with 80 percent of all wheat varieties planted in Asia and Africa, the germ plasm of all major Pakistani wheat varieties tested in Kenya over the past few years did not provide adequate resistance to Ug99. Danger is at the doorstep.

### **40 Million Rupees Allocated to Combat the Threat**

The Government of Pakistan has allocated 40 million rupees (USD 645,000) to combat the threat of Ug99. The effort includes revitalizing Pakistan's wheat research capacity and implementing a wheat rust early warning system. An aggressive breeding program has been established utilizing new bio-technological molecular markers and haploids and active collaborative with international centers such as CIMMYT and ICARDA.

### **Three-Tier Strategy Begun**

The Pakistan Agriculture Research Council (PARC) and the National Wheat Programme have devised a three-tier strategy to protect the Pakistan wheat crop from Ug99. First, high-yielding germ plasm selected from the elite screening nursery at CIMMYT will be introduced, adapted and then released. These varieties have shown resistance to Ug99 based on testing in Africa's hot spots. Secondly, material from the international stem rust screening nursery will be integrated with commercial wheat crops. Thirdly, agricultural scientists hope to

identify rust-resistant plant genes and incorporate them into wheat strains via traditional plant breeding programs. Disease surveillance and wheat breeding is already underway to monitor for wheat rust and to develop Ug99 resistant varieties.

Dr Mujeeb Qazi, Program Director of Pakistan's National Wheat Program, warns against complacency. According to Dr. Qazi, the swift movement of Ug99 from Yemen to Iran within just one year has raised alarm bells within Pakistan's scientific community. Pakistani researchers will have to expedite efforts to protect wheat productivity over the next crop cycle (2008-09) by locally introducing Ug99-resistant wheat seed. Dr Qazi warned that, as with 80 percent of all wheat varieties planted in Asia and Africa, the germ plasm of all major Pakistani wheat varieties tested in Kenya over the past few years did not provide adequate resistance to Ug99. Danger is at the doorstep.

### **Borlaug Fellowship Program Funds CIMMYT Training**

Two Pakistani wheat stem rust scientists will attend training at CIMMYT later this year under USDA's Borlaug Fellowship Program.

### **OTHER RELEVANT REPORTS**

<b>REPORT #</b>	<b>SUBJECT</b>	<b>DATE SUBMITTED</b>
PK7020	<a href="#">Pakistan to Import 1 Million Ton Wheat</a>	09/18/2007
PK7034	<a href="#">Backdrop for Current Wheat Shortage</a>	12/20/2007
PK7035	<a href="#">December Wheat Situation Update</a>	12/20/2007
PK8010	<a href="#">Grain and Feed Annual 2008</a>	03/06/2008

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